DOCUMENT RESUME

ED 403 440 CE 073 308

AUTHOR Waidelich, William D.; Hillison, John
TITLE Using an Agricultural Model to Establish Core Occupational Competencies for Secondary Vocational Programs.
PUB DATE Dec 96
NOTE 6p.; Paper presented at the American Vocational Association Convention (Cincinnati, OH, December 5-8, 1996).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Agricultural Education; *Agricultural Occupations; Behavioral Objectives; *Competence; Competency Based Education; *Curriculum Development; *Job Skills; *Occupational Safety and Health; Safety Education; Secondary Education; Vocational Education
IDENTIFIERS *Ohio

ABSTRACT

A model was developed for determining critical secondary vocational occupational competencies as rated by industry representatives. The method used to generate the information was an item analysis of competencies that industry experts identified as core competencies in the Ohio Competency Analysis Profile (OCAP) process. The study identified the importance of core competencies in 10 agricultural occupations and determined the critical core of occupational competencies in each of the occupations. Ratings were made by 222 agricultural employees (of 500 surveyed). Conclusions and recommendations from the study included the following: (1) industry workers can rate needed competencies and should be involved in doing so; (2) an important core exists in the area of safety instruction and should be taught to students studying all 10 agricultural worker categories; and (3) other vocational service areas should follow the model of agricultural education by conducting similar studies in appropriate worker categories. (Author/KC)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY

WD Waidelich

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

ED 403 440

USING AN AGRICULTURAL MODEL TO ESTABLISH CORE OCCUPATIONAL COMPETENCIES FOR SECONDARY VOCATIONAL PROGRAMS

William D. Waidelich
Ohio Agricultural Education
Curriculum Materials Service
2120 Fyffe Road
The Ohio State University
Columbus, OH 43210
(614) 292-4848
FAX 614-292-4919
e-mail: wwaidel@magnus.acs.ohio-state.edu

John Hillison
Virginia Tech
268 Litton Reaves Hall
Blacksburg, VA 24061-0343
(540) 231-8187
FAX (540) 231-3824
e-mail hillison@vt.edu

Abstract

This study developed a model for determining critical secondary vocational occupational competencies by testing it in the agricultural education service area. The method used to generate the information was an item analysis of competencies that industry experts identified as core competencies in the Ohio Competency Analysis Profile (OCAP) process.

The study identified the importance of core competencies in 10 agricultural occupations and determined the critical core of occupational competencies in each of the occupations. Conclusions and recommendations for the study included:

1. *Industry workers can rate needed competencies and should be used to do so.*
2. *An importance core exists in the area of safety instruction and should be taught to students studying all 10 agricultural worker categories.*
3. *Other vocational service areas should follow the model of agricultural education by conducting similar studies in appropriate worker categories.*

Introduction

Technology, academics, basic skills, and authentic assessments are just some of the terms used in today's educators daily teaching and learning process. Educational reform movements, state and federal commission reports, and ever shrinking financial support for education can make the daily life of an educator challenging to just plain frustrating. Educators at all levels seem to be consumed by the latest movement towards the better school, the inclusion of all students, and the scrutiny of the general public. If educators, especially vocational educators, cannot focus on developing the best educational opportunities for their students to succeed and advance into today's ever changing societal environment, they will have left a generation of workers without necessary skills.

"The nation's schools must be transformed into high-performance organizations in their own right" (Secretary's commission on Achieving Necessary Skills, 1991, p. vi). Vocational education has a unique opportunity to develop a process for this transformation. Many of the current reform movements call for "new" components such as business/industry linkages, community input, and product-based rather than process-based evaluation. The new jobs to be created in the next decade will require more, not less, education (Bailey, 1991). Vocational educators' commitment to developing occupationally and academically competent, as well as employable, individuals through a curriculum

CE 073 308

BEST COPY AVAILABLE

development process utilizing business and industry advisory committees is the role model that reform movements could follow as exemplified by workforce development councils.

In order to assist vocational teachers in the determination of what should be taught as part of their program's curriculum, the following was the statement of the problem for this study: How can future vocational educators determine the competencies students should possess for employer identified and verified employability competency lists which contain core competencies. With that problem in mind, the purpose of the study was to determine core vocational competencies using an agricultural model. The importance of the competencies were determined for secondary agricultural education programs as identified by Ohio agricultural industry and business experts.

Vocational educators can create programs with employer-verified competency lists. This is equally true in agricultural education. The use of business, industry, and labor representatives to analyze the occupational competencies was recommended in The Unfinished Agenda (National Commission on Secondary Vocational Education, 1984).

The occupational skills portion of the curriculum must be based upon an analysis of the occupation for which the training is provided. Additionally, business, industry, and labor must be involved in vocational curriculum and revision activities on a continuous basis to keep curricula current with technological advances. (p. 14)

"Curricula for vocational education are derived from requirements in the world of work" (Miller, 1985, p. 117). As a result vocational curriculum must be adapted to fit the ever changing work environment. The first step is to analyze and verify the competencies necessary for successful employment and advancement in agricultural occupations (Waidelich, 1991). Agricultural educators should analyze the competencies by occupation and level with the occupation, not by current program types and courses. Landscaper, forester, and animal management technician are examples of occupations that agricultural educators should analyze before they develop their agricultural education programs.

Core items identify the knowledge, skills, and attitudes essential for entry-level employment. Advancing items identify the knowledge, skills, and attitudes needed to advance in a given occupation. Futuring items identify the knowledge, skills, and attitudes needed to enter and remain in a given occupation three to four years from now (Vocational Instructional Materials Laboratory, 1992).

All agricultural education students in a program should receive a basic core of agricultural and employment competencies for each program, regardless of the student's geographic location in the state, the type of agriculture in that location, the agricultural background of the student , and the student's agricultural occupational goals. All agricultural programs should teach the core competencies. This core will be the course content over the program length. Districts may add or expand as many units , subunits, competencies, or competency builders as desired to reflect local needs, trends, and specialties. However, local advisory committees should identify and verify additional items (Vocational Instructional materials Laboratory, 1992).

Purpose and Objectives

The purpose of the study was to collect data from industry representatives and determine their perspective on the competencies that should be developed in agricultural workers. The specific objectives of the study were to:

1. Determine the importance ratings for competencies in each of 10 agricultural worker categories.
2. Determine a core of technical competencies for all 10 agricultural worker categories.
3. Determine if the agricultural model could be used in other vocational service areas.

Procedures

The study used a comprehensive and employer-verified competency list. Ohio Competency Analysis Profile (OCAP) lists evolved from a modified DACUM (Developing A CurriulUM) process involving business, industry, labor, and community agency representatives from throughout Ohio. The researcher used the criticality process of the American College Testing program (1994) as the method of collecting importance and relative time spent data. Subject matter experts (SMEs), usually incumbent employees, for the job determined the most critical competencies for their occupation.

The researchers, along with the Vocational Instructional Materials Laboratory (VIML), Center on Education and Training for Education (CETE), and The Ohio State University developed the survey procedures and instrument according to guidelines by the American College Testing Program. Between January and June 1994, the VIML mailed the survey instrument to collect data.

The population for this study was employees of agricultural firms in Ohio working full time in an occupation that would require initial entry with a vocational education high school training background. From this population, the researchers and state supervisors in the Agricultural Education Service, Division of Vocational and Career Education, Ohio Department of Education asked teachers, state and local advisory committee members, and trade and business organization officers to help identify individuals who met the definition of the population. The state supervisors identified a group of 50 individuals for each OCAP competency list. Of the 500 identified individuals 222 employees responded to the survey.

Analysis of Data

The researchers used descriptive statistics (means and standard deviations) to analyze data. The importance rating was based upon a four point rating scale where: 0 = not part of the job (interpreted as no importance), 1 = minor importance, 2 = average importance, and 3 = major importance.

Results

The highest rated competency for **agricultural production worker** was apply safe work habits ($\underline{M} = 2.79$). Seven of the top 20 competencies were from the agricultural mechanics unit, four of the competencies were from the business management unit, while three of the competencies were from the general safety precautions unit. The highest rated competency for **agricultural sales and service worker** was interact with customer ($\underline{M} = 2.85$). Nine of the top 20 competencies were from the fertilizer/chemical sales and

service worker unit, three were from both the general safety precautions and sales skills units, while two each were from the customer service and business management units. The highest rated competency for the **agricultural/industrial worker** was maintain safe work environment (**M** = 2.87). Four of the top 20 competencies were from the general safety precautions and drivetrain units, three were from the general repair procedures unit, two were from the electrical systems and engine block units, while one was from the general equipment maintenance unit. The highest rated competency for **animal management technician** worker was demonstrate safe work habits and maintain safe work environment (both **M** = 2.54). Of the 20 highest rated competencies, four were from the handling, health care, and business management units, while three were from the general safety precautions unit. The highest rated competency for **floriculture and greenhouse worker** was determine customer needs and services (**M** = 2.56). Eight of the top 20 competencies were from the marketing and sales unit, four were from the greenhouse plant production unit, while three were from the general safety precautions unit.

The highest rated competency for **forestry industry worker** was maintain a safe work environment (**M** = 2.91). Three of the top 20 competencies were each from general safety precautions, forestry equipment operations, forest establishment, and forestry equipment maintenance. The highest rated competency for **meat processors** was clean and sanitize the facility (**M** = 3.00). Five of the top 20 competencies were for the competency area of product handling unit, four were for the wholesale cutting unit, and three for general safety unit. The highest rated competency for nursery and **garden center workers** was maintain company image (**M** = 2.96). Six of the top competencies were from the operations and marketing and sales units, and two from the equipment maintenance unit. The highest rated competency for **resource conservation workers** was maintain safe work environment (**M** = 2.60). Five of the top 20 rated competencies were from the resource conservation unit, four from the general safety precautions unit, and three from the equipment maintenance unit. The highest rated competency for **turf and landscape workers** was enhance company image (**M** = 2.90). Seven of the top 20 rated competencies were in the turf and landscape operations unit, five were from equipment maintenance, and three were from general safety precautions.

Conclusions/and Recommendations

It is both possible and desirable to work with industry to establish priority order to competencies that should be taught to vocational students, including agricultural education students. By asking industry for help in determining competencies needed, industry can establish closer ties that will enhance the assistance of workforce development councils. It is also possible to glean from the prioritized competencies a core list for all programs. For this study the core was safety instruction.

Recommendations included (a) agricultural educators should concentrate on general safety instruction, (b) the core should be the most sharply focused part of the curriculum, and (c) all vocational service areas should use a similar approach to identify priorities for curriculum.

References

American College Testing Program. (1994). Work keys occupational profiling training manual. Iowa City, IA Author.

Bailey, T. (1991). Jobs of the future and the education they will require: Evidence from occupational forecasts. Education Researcher, 20(2), 11-20.

Miller, M. D. (1985). Principles and a philosophy for vocational education. Columbus, OH: The Ohio State University, The National Center for Research in Vocational Education.

National Commission on Secondary Vocational Education. (1984). The unfinished agenda: The role of vocational education in the high school. Columbus, OH: The Ohio State University, The National Center for Research in Vocational Education.

Secretary's Commission on Achieving Necessary Skills. What work requires of schools: A SCANS report for America 2000. Washington, DC:
U. S. Government Printing Office.

Vocational Instructional Materials Laboratory. (1991). Ohio Competency Analysis profile (OCAP). Columbus, OH: The Ohio State University.

Waidelich, W. D. (1991). Developing an Agricultural Education Curriculum. Unpublished paper. Columbus, OH: The Ohio State University, Ohio Agricultural Education Curriculum Materials Service.